

WHAT IS CLAIMED IS:

1. A process for the preparation of an organopolysiloxane resin,
comprising:

reacting in a 1st stage,

5 at least one silane of the formula



and/or its hydrolyzate $R_3SiOSiR_3$, where

R are identical or different, and are a monovalent organic radicals, and

R^1 is an alkyl radical,

10 and at least one silane of the formula



and/or its partial hydrolyzates, where

R^2 are identical or different and are alkyl radicals,

and optionally an organosilicon compound selected from the group consisting of
15 silanes of the formula



and/or their partial hydrolyzates, where

a is 1 or 2,

R^3 are identical or different and are monovalent organic radicals, and

20 R^4 are identical or different and are alkyl radicals, and

organopolysiloxanes of the formula



where

R^5 are identical or different and are monovalent organic radicals, and

b is an integer with a value of 3 to 8,

and mixtures thereof, with water in the presence of acid, at least part of the alcohol

5 formed being distilled off;

in a 2nd stage,

reacting a homogeneous reaction mixture obtained in the 1st stage in the presence
of base and in the presence of a water-insoluble organic solvent in at least a
sufficient amount to obtain a homogeneous reaction mixture, and removing water
10 and alcohol and optionally part of the water-insoluble organic solvent by distillation;

in a 3rd stage,

neutralizing the reaction mixture obtained in the 2nd stage with acid, and distilling
away any water still present, alcohol and part of the water-insoluble organic solvent;

in a 4th stage,

15 treating the reaction mixture obtained in the 3rd stage with at least one
organopolysiloxane and removing precipitated salt formed in the neutralization;

optionally, in a 5th stage,

separating the homogeneous reaction mixture obtained in the 4th stage from water-
insoluble organic solvent.

1 2. The process of claim 1, wherein b is an integer of 4 or 5.

1 3. The process of claim 1, wherein the organopolysiloxanes used
2 in the 4th stage contain units of the formula

3 $R^6_c(OH)_dH_eSiO_{(4-c-d-e)/2}$ (V),

4 where

5 R^6 are identical or different, and are monovalent organic radicals,
6 c is 0, 1, 2 or 3,
7 d is 0, 1 or 2, and
8 e is 0, 1 or 2,
9 with the proviso that the sum (c + d + e) is ≤ 3 .

1 4. The process of claim 3, wherein d is 0.

1 5. The process of claim 3, wherein e is 0.

1 6. The process of claim 3, wherein the organopolysiloxanes
2 containing units of formula (V) are linear or branched organopolysiloxanes.

1 7. The process of claim 3, wherein the organopolysiloxanes
2 containing units of formula (V), have a viscosity of 0.65 to 100,000 mPa·s at 25°C.

1 8. The process of claim 1,
2 wherein in a 1st stage,
3 hexamethyldisiloxane and/or trimethylethoxysilane optionally mixed with 1,3-
4 divinyldimethyldisiloxane and/or vinyltrimethylethoxysilane and tetraethoxysilane,
5 and/or their partial hydrolyzates, are mixed with water and 0.2 to 50 mmol of acid,
6 based on 1000 g of reaction mixture in the 1st stage prior to distillation, and reacted
7 at the boiling point of the reaction mixture and at a pressure of between 900 and
8 1100 hPa, and ethanol formed is distilled off;
9 in a 2nd stage,
10 a homogeneous reaction mixture obtained in the 1st stage is reacted in the presence
11 of at least one base selected from the group consisting of sodium hydroxide,
12 potassium hydroxide and methylamine, and in the presence of a water-insoluble
13 organic solvent, at the boiling point of the reaction mixture and at a pressure of
14 between 900 and 1100 hPa, all or almost all of the water and ethanol and optionally
15 part of the water-insoluble organic solvent is distilled off;
16 in a 3rd stage,

17 the reaction mixture obtained in the 2nd stage is neutralized with acid and optionally
18 all or almost all of the water and ethanol and optionally part of the water-insoluble
19 organic solvent are distilled off;
20 in a 4th stage,
21 the reaction mixture obtained in the 3rd stage is treated with organopolysiloxanes,
22 after which the precipitated salt formed in the neutralization is filtered off; and
23 optionally, in a 5th stage,
24 the reaction mixture obtained in the 4th stage is distilled or spray-dried in a nitrogen
25 atmosphere.

1 9. The process of claim 8, wherein the water-insoluble organic
2 solvent is selected from the group consisting of toluene, 1-dodecene, xylene, or
3 mixtures thereof.

1 10. The process of claim 1,
2 wherein in a 1st stage,
3 hexamethyldisiloxane and/or trimethylethoxysilane optionally mixed with 1,3-
4 divinyltetramethyldisiloxane and/or vinyl dimethylethoxysilane and tetraethoxysilane,
5 and/or their partial hydrolyzates, are mixed with water and 100 to 500 ppm of HCl,
6 based on the total weight of the reaction mixture in the 1st stage prior to distillation,
7 and reacted at the boiling point of the reaction mixture and at a pressure of between
8 900 and 1100 hPa, and about 70 percent by weight of the ethanol formed, based on
9 the total amount of ethanol formed, is distilled off;
10 in a 2nd stage,
11 a homogeneous reaction mixture obtained in the 1st stage is reacted in the presence
12 of at least one base selected from the group comprising sodium hydroxide,
13 potassium hydroxide and methylamine, and in the presence of toluene, 1-dodecene
14 or xylene as the water-insoluble organic solvent, at the boiling point of the reaction
15 mixture and at a pressure of between 900 and 1100 hPa, all or almost all of the
16 water and ethanol and optionally part of the water-insoluble organic solvent being
17 distilled off;
18 in a 3rd stage,

19 the reaction mixture obtained in the 2nd stage is neutralized with HCl, all or almost
20 all of the water and optionally ethanol and optionally part of the water-insoluble
21 organic solvent is distilled off;
22 in a 4th stage,
23 the reaction mixture obtained in the 3rd stage is treated with organopolysiloxanes
24 containing vinyl groups and having a viscosity of 5 to 50,000 mPa·s, after which the
25 precipitated salt formed by neutralization is filtered off; and
26 optionally, in a 5th stage,
27 the reaction mixture obtained in the 4th stage is distilled or spray-dried in a nitrogen
28 atmosphere.

1 11. The process of claim 1, wherein in the fourth stage, further
2 water-insoluble organic solvent, a rheology modifier, an inhibitor, or two or more
3 of these are added.

1 12. The process of claim 8, wherein in the fourth stage, further
2 water-insoluble organic solvent, a rheology modifier, an inhibitor, or two or more
3 of these are added.

1 13. The process of claim 10, wherein in the fourth stage, further
2 water-insoluble organic solvent, a rheology modifier, an inhibitor, or two or more
3 of these are added.